

REMARKS

Claims 1-24 are pending. Claims 1, 5, 6, 13, 14, 21, and 22 have been amended.

The Office Action contains an objection to the specification on the basis that the Abstract contains a typographical error. The error has been corrected in the attached replacement Abstract.

Claims 1, 4-7, 12-15, and 21-23 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. No. 6,137,100 to Fossum et al. '100. This rejection respectfully is traversed.

Claim 1 recites, *inter alia*, a macro-pixel including “at least two color pixel elements of substantially equal pixel area.” Each color pixel element includes “a photoreceptor having a device geometry, responsive to receiving light, to generate an output signal indicative of an amount of light photons received.” A first of the color pixel elements receives “a first color of light,” and a second of the color pixel elements receives “a second color of light.”

Fossum et al. '100 discloses macro-pixels in which color pixels have different sizes based on the color response of the image sensor. The dissimilar pixel areas allow receiving an amount of light in a pixel that is dependent on the specific response. In an alternative embodiment shown in Fig. 4B, Fossum et al. '100 discloses a macro-pixel in which the pixels and the photoelements have equal size. Color response compensation comes from the use of color filters and lenses. Fossum et al. '100 does not teach or suggest pixel elements “of substantially equal pixel area” with photoreceptors, the device geometries of which are “indicative of an amount of light photons received.” Fossum et al. '100 does not teach or suggest the invention recited in claim 1. Claims 2-12 depend from claim 1 and are patentable over Fossum et al. '100 for at least the same reasons.

Claim 13 recites, *inter alia*, a CMOS color pixel assembly including “a plurality of macro pixels.” Each macro pixel includes “at least three color pixel elements of substantially equal pixel area, each color pixel element including a photoreceptor having a device geometry, responsive to receiving light, to generate an output signal indicative of an amount of light photons received.” Fossum et al. ‘100 discloses pixels of various sizes, based on light response. Photodiode geometry is not altered in Fossum et al. ‘100. In an alternative embodiment, the pixel sizes are similar, but filters and lens shapes, not photodiode geometry, are altered to adjust the response.

Claim 21 recites, *inter alia*, a color pixel assembly having at least one macro pixel including “at least three color pixel elements having equal pixel areas.” Each color pixel element includes “a photoreceptor having a device geometry and at least one switch configured and arranged to vary the device geometry, responsive to receiving light, to generate an output signal indicative of an amount of light photons received.” The photoreceptors of the first color pixel elements, respectively, “having a first geometry and a responsivity to light that is a function of the first geometry of the photoreceptor.” The second color pixel elements receive a second color of light and have a responsivity to light “that is a function of the second geometry,” and the third color pixel elements receive a third color of light and have a responsivity to light “that is a function of the third geometry” of the respective photoreceptor. Fossum et al. ‘100 discloses pixels of various sizes, based on light response. Photoreceptor geometry is not altered in Fossum et al. ‘100. Further, Fossum et al. does not teach or suggest switches for varying the geometry. In an alternative embodiment, the pixel sizes are similar, but filters and lens shapes, not photodiode geometry, are altered to adjust the response. Fossum et al. ‘100 does not anticipate or render obvious the recited invention. Claims 22-24 depend from claim 21 and are patentable over Fossum et al. ‘100 for at least the same reasons.

Claims 2-3, 16, and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fossum et al. ‘100 in view of U.S. Pat. No. 6,040,592 to McDaniel et al. The rejection respectfully is traversed. Claims 2-3 depend from claim 1, which is

patentable over Fossum et al. '100. Claim 16 depends from claim 13, which is patentable over Fossum et al. '100. Claim 24 depends from claim 21, which is patentable over Fossum et al. '100. McDaniel et al. does not cure the deficiencies of Fossum et al. '100. McDaniel et al. has been cited as providing various types of photoreceptors diffusions. McDaniel et al. does not combine with Fossum et al. '100 to provide the missing elements of pixel cells of "equal pixel area" and the photoreceptors having respective geometries and a responsivity to respective colors of light "that is a function of" the geometry of the photoreceptor. Claims 2-3, 16, and 24 are patentable over the cited prior art.

Claims 8-9 and 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fossum et al. '100 in view of U.S. Pat. No. 5,969,583 to Fossum et al. This rejection respectfully is traversed. Claims 8-9 depend from claim 1, which is patentable over Fossum et al. '100. Claims 17-18 depend from claim 13, which also is patentable over Fossum et al. '100. Fossum et al. '583 does not cure the deficiencies of Fossum et al. '100. Fossum et al. '583 has been cited as providing a microlens photonically coupled to at least one of the color pixel elements. Fossum et al. '583 does not combine with Fossum et al. '100 to provide the missing elements of pixel cells of "equal pixel area" and the photoreceptors having respective geometries and a responsivity to respective colors of light "that is a function of" the geometry of the photoreceptor. Claims 8-9 and 17-18 are patentable over the cited prior art.

Claims 10-11 and 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fossum et al. '100 in view of U.S. Pat. No. 5,119,181 to Perregaux et al. Applicants respectfully traverse the rejection. Claims 10-11 depend from claim 1, and claims 19-20 depend from claim 13, which are patentable over Fossum et al. '100. Perregaux et al. has been cited as providing at least one switch coupled to the photoreceptor to vary the device geometry. Applicant respectfully disagrees with this characterization of Perregaux et al. The Office Action points to col. 5, lines 60-62 of Perregaux et al. as providing the missing teaching. Applicant notes, however, that the referenced portion of the scanning array description has been taken out of context.

Perregaux et al. does not teach or suggest that a switch is used to vary device geometry. Claims 10-11 and 19-20 are patentable over the proposed combination of Fossum et al. '100 and Perregaux et al.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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